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## NOTICE OF ALLOWANCE AND FEE(S) DUE

1933 7590 06/25/2009

FRISHAUF, HOLTZ, GOODMAN & CHICK, PC  
220 Fifth Avenue  
16TH Floor  
NEW YORK, NY 10001-7708

EXAMINER

VLAHOS, SOPHIA

ART UNIT

PAPER NUMBER

2611

DATE MAILED: 06/25/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/579,385

05/11/2006

Satoru Shiratsuchi

06299/LH

8214

TITLE OF INVENTION: DIGITAL SIGNAL OFFSET ADJUSTING APPARATUS AND PULSE PATTERN GENERATOR USING THE SAME

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	09/25/2009

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.**

**THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.**

### HOW TO REPLY TO THIS NOTICE:

#### I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.**

# **PART B - FEE(S) TRANSMITTAL**

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

1933 7590 06/25/2009

**FRISHAUF, HOLTZ, GOODMAN & CHICK, PC**  
220 Fifth Avenue  
16TH Floor  
NEW YORK, NY 10001-7708

## **Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/579,385 05/11/2006 Satoru Shiratsuchi 06299/LH 8214

TITLE OF INVENTION: DIGITAL SIGNAL OFFSET ADJUSTING APPARATUS AND PULSE PATTERN GENERATOR USING THE SAME

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional NO \$1510 \$300 \$0 \$1810 09/25/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
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VLAHOS, SOPHIA 2611 375-239000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 \_\_\_\_\_

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 \_\_\_\_\_

3 \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee  
☐ Publication Fee (No small entity discount permitted)  
☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.  
☐ Payment by credit card. Form PTO-2038 is attached.  
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_

Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_

Registration No. \_\_\_\_\_

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,385	05/11/2006	Satoru Shiratsuchi	06299/LH	8214
1933	7590	06/25/2009	EXAMINER	
FRISHAUF, HOLTZ, GOODMAN & CHICK, PC 220 Fifth Avenue 16TH Floor NEW YORK, NY 10001-7708			VLAHOS, SOPHIA	
			ART UNIT	PAPER NUMBER
			2611	
DATE MAILED: 06/25/2009				

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 629 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 629 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/579,385	SHIRATSUCHI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	SOPHIA VLAHOS	2611	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/14/09.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
  - \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

**Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</li> <li>2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</li> <li>3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br/>Paper No./Mail Date _____</li> <li>4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br/>of Biological Material</li> </ol> | <ol style="list-style-type: none"> <li>5. <input type="checkbox"/> Notice of Informal Patent Application</li> <li>6. <input type="checkbox"/> Interview Summary (PTO-413),<br/>Paper No./Mail Date _____.</li> <li>7. <input type="checkbox"/> Examiner's Amendment/Comment</li> <li>8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance</li> <li>9. <input type="checkbox"/> Other _____.</li> </ol> |
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## **DETAILED ACTION**

### ***Specification***

1. The revised abstract received on 5/14/09 is acceptable

### ***Allowable Subject Matter***

2. The following is a statement of reasons for the indication of allowable subject matter: The prior art of the record fails to teach or suggest alone or in combination: A digital signal offset adjusting apparatus comprising: an operational amplifier, a first input end of which is connected to the other end of the first coil, a second input end of which is connected to the direct current voltage generator, an output end of which is connected to another end of the second coil, and which outputs to the output terminal via the other end of the second coil from the output end, the low frequency band of the input digital signal passed to the other end of the first coil input to the first and second input ends and a composite signal obtained by combining the direct current component and the direct current bias voltage output from the direct current voltage generator; and a frequency characteristic compensating circuit connected between a reference electrical potential point and the second input end of the operational amplifier or between the second input end and the output end, the compensating circuit being adopted to compensate for a frequency characteristic so that a gain of the operational amplifier increases with a component having a higher frequency from among the low frequency bands of the input digital signal passed to the other end of the first coil, as recited in claim 1 and in combination with other elements of the claim.

Claims 1-5 are allowed over prior art.

The prior art of the record fails to teach or suggest alone or in combination: A pulse pattern generator comprising: a digital signal offset adjusting apparatus, wherein the digital signal offset adjusting apparatus comprises: an operational amplifier, a first input end of which is connected to the other end of the first coil, a second input end of which is connected to the direct current voltage generator, an output end of which is connected to another end of the second coil, and which outputs to the output terminal via the other end of the second coil from the output end, the low frequency band of the input digital signal passed to the other end of the first coil input to the first and second input ends and a composite signal obtained by combining the direct current component and the direct current bias voltage output from the direct current voltage generator; and a frequency characteristic compensating circuit connected between a reference electrical potential point and the second input end of the operational amplifier or between the second input end and the output end, the compensating circuit being adopted to compensate for a frequency characteristic so that a gain of the operational amplifier increases with a component having a higher frequency from among the low frequency bands of the input digital signal passed to the other end of the first coil, as recited in claim 11 and in combination with other elements of the claim

Claims 11-15 are allowed over prior art.

The prior art of the record fails to teach or suggest alone or in combination: A digital signal offset adjusting apparatus comprising: a first operational amplifier, a first input end of which is connected to the other end of the first coil, a second input end of which is connected to a reference electrical potential point, and which outputs from an output end a first inverted and amplified signal obtained by inverting and amplifying the low frequency band and the direct current component of the input digital signal passed to the other end of the first coil; a second operational amplifier, a first input end of which is connected to the direct current voltage generator, a second input end of which is connected to the reference electrical potential point, and which outputs from an output end a second inverted and amplified signal obtained by inverting and amplifying the direct current bias voltage output from the direct current voltage generator; a third operational amplifier, a first input end of which is connected in common to each of the output ends of the first and second operational amplifiers, a second input end of which is connected to the reference electrical potential point, and which inverts and amplifies a combined signal obtained by combining the first and second inverted and amplified signals and outputs the inverted and amplified signal to the other end of the second coil; and first and second frequency characteristic compensating circuits connected between the reference electrical potential point and each of the first input end of the first and third operational amplifiers or between each of the first input end and the output end of the first and third operational amplifiers, the first and second frequency characteristic

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compensating circuits being adopted to compensate for a frequency characteristic so that a gain of each of the first and third operational amplifiers increases with a component having a higher frequency from among the low frequency bands of the input digital signal passed to the other end of the first coil, as recited in claim 6 and in combination with other elements of the claim.

Claims 6-10 are allowed over prior art

The prior art of the record fails to teach or suggest alone or in combination: A pulse pattern generator comprising: a digital signal offset adjusting apparatus, wherein the digital signal offset apparatus comprises: a first operational amplifier, a first input end of which is connected to the other end of the first coil, a second input end of which is connected to a reference electrical potential point, and which outputs from an output end a first inverted and amplified signal obtained by inverting and amplifying the low frequency band and the direct current component of the input digital signal passed to the other end of the first coil; a second operational amplifier, a first input end of which is connected to the direct current voltage generator, a second input end of which is connected to the reference electrical potential point, and which outputs from an output end a second inverted and amplified signal obtained by inverting and amplifying the direct current bias voltage output from the direct current voltage generator; a third operational amplifier, a first input end of which is connected in common to each of the output ends of the first and second operational amplifiers, a second input end of which



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is connected to the reference electrical potential point, and which inverts and amplifies a combined signal obtained by combining the first and second inverted and amplified signals and outputs the inverted and amplified signal to the other end of the second coil; and first and second frequency characteristic compensating circuits connected between the reference electrical potential point and each of the first input end of the first and third operational amplifiers or between each of the first input end and the output end of the first and third operational amplifiers, the first and second frequency characteristic compensating circuits being adopted to compensate for a frequency characteristic so that a gain of each of the first and third operational amplifiers increases with a component having a higher frequency from among the low frequency bands of the input digital signal passed to the other end of the first coil, as recited in claim 16 and in combination with other elements of the claim.

Claims 16-20 are allowed over prior art.

### ***Conclusion***

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ohkawa (U.S. 3,950,711) discloses a frequency response controlling circuit.

Oppelt (U.S. 6,573,788) discloses an amplifier device with pulse shaping circuitry.

### **Contact Information**

Art Unit: 2611

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SOPHIA VLAHOS whose telephone number is (571)272-5507. The examiner can normally be reached on MTWRF 8:30-17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571 272 3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SOPHIA VLAHOS/  
Examiner, Art Unit 2611  
6/25/2009

/Mohammad H Ghayour/  
Supervisory Patent Examiner, Art Unit 2611